

BRS	22	"multilevel" adj3 market\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 14:12
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BRS	62	((multi adj2 level adj3 market\$) or ("multi-level" adj3 market\$) or ("multilevel" adj3 market\$)) or ((amway quixtar).as.)) and (MLM or marketing)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 14:24
BRS	25	(alticor amwat quixtar).as.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 16:11
BRS	60	(multi adj2 level adj3 market\$) or ("multi-level" adj3 market\$) or ("multilevel" adj3 market\$)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 16:22
BRS	60	(multi adj2 level adj3 market\$) or ("multi-level" adj3 market\$) or ("multilevel" adj3 market\$)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 18:06
BRS	49	((order near5 profile) and (recur\$ frequen\$ periodic\$)) and (marketing)) and (multilevel or multi-level or multi adj2 level)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/25 18:21
BRS	34	((order near5 profile) and (recur\$ frequen\$ periodic\$)) and (marketing)) and (web or www)) and (@ad<"19990302").ad.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/26 15:53
BRS	42	((order near5 profile) and (recur\$ frequen\$ periodic\$)) and (order adj3 profile)) and (product and service)) and (monthly or weekly or yearly)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/26 16:04
BRS	28	((multi near1 level) near4 (marketing or selling)) and (Internet or web or www)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/26 16:25
BRS	57	(((((order near5 profile) and (recur\$ frequen\$ periodic\$)) and (order adj3 profile)) and (product and service)) or (((order near5 profile) and (recur\$ frequen\$ periodic\$)) and (order adj3 profile)) and (product and service)) and	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	2004/11/26 16:26

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Wireless Internet gives auto industry the buzz

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Abstract:

Today, handheld devices seem to be getting the most press as a means of wireless data access. Insiders, however, see another vehicle - the millions of cars and trucks on the road. They see a potentially lucrative market in the coming wireless car. While segments of the US trucking industry have enjoyed the benefits of wireless data services, the market has yet to reach the average motorist. Only a small number of vehicles are equipped with global positioning systems. However, that situation is likely to change dramatically in the next couple of years. Telematics has been coined to describe these in-vehicle in telecommunications services.

Full Text:

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[Headnote]

Telematics deployment in cars - a potential boom industry could triple in five years.

Lately, when the subject of wireless data comes up in the press, it's likely to concern the Internet. Wireless carriers are understandably interested in tapping into the enthusiasm. Every day around the world, hundreds of thousands of new users log-on to access information and engage in electronic commerce.

Today, handheld devices seem to be getting the most press as a means of wireless data access. Insiders, however, see another vehicle - the millions of cars and trucks on the road. They see a potentially lucrative market in the coming 'wireless car.

While segments of the U.S. trucking industry have enjoyed the benefits of wireless data services, the market has yet to reach the average motorist. Only a small number of vehicles are equipped with global positioning systems or General Motors Corp.'s OnStar assistance service (see sidebar, page 78). However, that situation is likely to change dramatically over the next couple of years. 'Telematics' has been coined to describe these in-vehicle telecommunications services.

THE DEMAND PARADIGM

According to the Yankee Group (www.yankeegroup.com), the wireless data market in the United States is expected to expand to 12.6 million users by 2002. By that same time, the number of worldwide mobile-telephony users is expected to reach 529 million. The forecasted growth of drivers communicating from their cars, coupled with the hours they already spend in their cars, indicates that the opportunity to deliver personalized content and information is huge, according to the Yankee Group.

Cahners In-Stat Group (www.instat.com) says that about 50 million people nationwide are mobile; they spend 20% or more of their time away from their desks. The group's research indicates that wireless Internet users prefer to pull down information when and where they need it, and not have it pushed to them.

Telematics today is in its infancy, but it will cover a wide range of real-world offerings and projected services that are likely to be either standard or optional in automobiles and trucks. These include Internet access, direction-finding and vehicle location services, as well as automatic toll collection and many others.

COMMERCIAL TRUCKING LEADS THE WAY

The commercial trucking industry is currently using advanced wireless dispatching and tracking services. Two leading providers of this technology include Qualcomm (www.qualcomm.com), with its OmniTracs satellite-based services, and HighwayMaster (www.highwaymaster.com), which provides tracking services through cellular networks.

OmniTracs was introduced in 1988.

Despite its relatively high costs, the service has been popular (see sidebar). More than 230,000 vehicles are presently using the system.

However, satellite-based services remain expensive - too expensive for metropolitan and many regional trucking companies. As a result, Qualcomm recently announced a deal with Sprint PCS (www.sprintpcs.com) that will utilize Sprint's terrestrial wireless networks,

" [We've] had our best year ever," reports Dave Brandos, vice president of marketing for Qualcomm Wireless Business Solutions.

Brandos says the deal with Sprint PCS will allow his company to leverage its knowledge of the transportation industry with Sprint's voice and data services. The new service, under Qualcomm's OmniExpress banner, will offer mobile communications and tracking services targeted at metropolitan

markets.

HighwayMaster offers trucking companies, brokers and others the ability to communicate with drivers while they are on the road. Through the use of the system, according to the company, fleet managers can send and receive data messages, place voice calls, receive proximity and actual vehicle location reports, manage and track loads while en route, calculate state mileage reports and more. Also, the system's software can integrate with PC-based, UNIX and AS/400 computer systems with integration applications available for more than 16 leading thirdparty software packages.

Other major players on the horizon include American Mobile Satellite Corp. (www.ammobile.com), which recently unveiled its enhanced and redesigned MobileMAX2 wireless data communications service. MobileMAX2 offers fleet managers a number of services, including the ability to track mileage, do load optimization, track maintenance scheduling, as well as track shipments. It is currently the only fleet management solution available in an integrated equipment package that combines both satellite and land-based technology, using the Ardis network, which is now owned and operated by American Mobile. The system uses a highly integrated transceiver/antenna packed in a compact shell. It contains both terrestrial and satellite transceivers and antennas, as well as an integrated J 1708 interface with application software and a GPS receiver.

THE MASS MARKET COMETH?

Providers of telematics hardware and services have zeroed-in on the trucking market. However, the market for such solutions has barely been scratched, according to analysts and industry executives.

"We are on the cusp of a major new marketplace for wireless," says Larry Swasey, vice president, Communications Research, at Allied Business Intelligence Inc. (www.alliedworld.com).

Swasey says that the market for telematics within the passenger car sector is likely to double or even triple over the next five years.

"All of the major domestic and foreign automakers are strongly interested in this," he says. Other industry research firms agree. The Yankee Group, for example, expects the market for wireless telemetry, which includes telematics, to hit over \$6.6 billion in revenues by the year 2004. According to Darryl Sterling, senior analyst at the Yankee Group's Wireless/Mobile Communications Group, this explosive growth will be fueled by the convergence of wireless, computing and Internet technology. This, he says, will create a slew of affordable and practical tools and components for the end-to-end solution, and the need for Wireless service providers to diversify their revenue streams.

"The sheer market potential for wireless telemetry has redefined an exciting future for this industry segment," he says. "It has also created a ruckus among wireless carriers as they strategically position themselves for their own piece of the wireless telemetry pie."

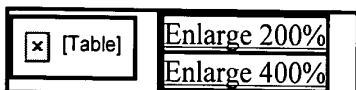
As the price for telemetry units and services decreases over time, the universe of machines using telemetry will increase dramatically, the Yankee Group predicts. In fact, the Yankee Group anticipates a number of devices being manufactured with embedded, ready-to-activate telemetry units as a value-added feature. This implies there is a large market for wireless telemetry transceivers, which in turn creates a latent demand for wireless airtime. The two fundamental drivers behind this widespread adoption of telemetry will be cost-savings and process efficiencies, according to a report released by the research firm.

Qualcomm's Brandos says that while his company is focusing solely on fleets, "the mass market among passenger cars is a very, very interesting area." In addition, services could be offered from a variety of providers through portals.

Marc Maes and Steven Buytaert, coCEOs of SmartMove (www.smartmove.be), say that telematics, which combines telecommunication and computing power for use in vehicles, is evolving from first- and second-generation versions into tomorrow's technology. They note that first-generation telematics products are already available on the market: navigation systems like Bosch's TravelPilot, VDO CC's Carin system and systems from several Asian and global manufacturers. These are all individual applications and each requires a dedicated (and thus expensive) hardware device with dedicated software.

Second-generation telematics, the generation being deployed today, involves a limited number of applications plus hardware. The combination of GPS with global system for mobilization (GSM) is now fueling a limited service market, Maes and Buytaert note. Examples of second-generation telematics are General Motors Corp.'s OnStar system, RESCU from Ford and the services delivered by Mannesmann Passo and Tegarom from Deutsche Telekom in Germany.

Maes and Buytaert say that in the third generation, products will completely replace their predecessors and establish a new standard. The third generation will show impressive enhancements and features. That generation will start when the first two generation bootstraps have been deployed and created enough enthusiasm for the services, they say.



U.S. fleet management system market



A sampling of telematics applications

[Sidebar]

OmniTracs: The basics Arguably the most successful telematics solution set so far is Qualcomm's OmniTracs. OmniTracs is an interactive information management system that includes two-way mobile communications, satellite tracking and fleet management software.

The OmniTracs system consists of three major elements - integrated mobile hardware, network management services and application software.

Qualcomm operates a Network Management Center (NMC) in San Diego to support the system. The NMC forms the network hub, processing over 4 million messages and position reports daily.

The OmniTracs system, while transmitting data from place to place, also manages the data flow, turning it into information that can be used for various purposes throughout a trucking company's operation. From communications and tracking, to maintenance and performance monitoring, as well as to state mileage reporting and driver e-mail, Qualcomm says that it offers a full suite of application software and the most comprehensive library of integration links available.

Qualcomm also plans to offer several additional applications as part of its OmniTracs System. One example is JTracs Pro, which will be a part of the OmniTracs Mobile Information Management System. JTracs Pro is designed to offer real-time vehicle diagnostics reporting. The application will have the ability to access and monitor third-party systems and devices via Qualcomm's Vehicle Data Gateway technology. GM takes to the road with OnStar

General Motors Corp. (www.gm.com) has been a leader in the nascent telematics market. While its OnStar system currently offers limited services compared with those envisioned for the future, the service is growing in popularity. In addition, General Motors has announced an ambitious plan to bring various new wireless services, including Internet access, to its cars.

The company recently disclosed that its wireless services will be included in nearly one million General Motors cars and trucks within the next 18 months, dramatically increasing the subscriber base from the current level of 75,000.

OnStar is an in-vehicle safety, security and information service that uses global positioning system (GPS) satellite technology and wireless communications to link the driver and vehicle to the 24-hour OnStar Center, where advisors provide real-time, person-to-person help. The company is now offering the service as a factory-installed option on several models and is expanding the selection of those models.

"Factory installation of OnStar will expand the availability of this innovative service to a million GM drivers beginning in the 2000 model year," says Ronald L. Zarrella, executive vice president of GM and president of North America Operations. "Initial consumer response to OnStar's standard equipment availability on the Cadillac Escalade last fall has been highly favorable and has provided the learning to allow for this expansion."

Chet Huber, managing director of OnStar, says that the service has logged more than one million calls from subscribers, including emergency requests, since being first offered three years ago. In addition to emergency calls, OnStar offers stolen vehicle tracking, remote door unlock, remote vehicle diagnostics, route support, convenience services locator and concierge services. OnStar was introduced in 1996 on three Cadillac models as a dealer-installed option. Twenty-one GM models were added in 1997. OnStar launched its second-generation three-button system in 1999 as standard equipment on the Cadillac Escalade, and as optional equipment on 11 additional models.

[Sidebar]

All aboard the data bus

A data bus is likely to become standard in most new cars in the near future, according to industry experts. Motorola, which has a long and well-respected relationship with automakers, is pushing a specific data bus configuration known as IDB.

"IDB is the only concept that considered the importance of separating vehicle control systems data flow from invehicle telematics equipment data flow," says Larry Swasey, vice president, Communications Research, at Allied Business Intelligence Inc.

The importance of the distinction is that the integrity of control systems data is protected, notes Swasey.

Swasey says that auto manufacturers tend to be "very conservative" and the Motorola proposal is likely to be adopted because of its perceived robustness and the company behind it.

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